

COASTAL ZONE

INFORMATION CENTER

A COASTAL BARRIERS RESOURCE MANUAL FEDERAL AND STATE PROGRAM HIGHLIGHTS



Florida Department of Community Affairs Tom Lewis, Jr., Architect, Secretary

November 1986

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TABLE OF CONTENTS

Chapter				Page
1. COASTAL BARRIERS: AN INTRODUCTION TO THE MANUAL	•	•	•	1
2. FEDERAL PROGRAMS	•	•	•	7
National Flood Insurance Program (NFIP) . Coastal Barrier Resources Act (CBRA)				9 16
3. STATE PROGRAMS		•		21
Coastal Construction Control Line Program Coastal Zone Protection Act of 1985:	•	•	•	22
Coastal Building Zones and Codes Florida's Beach Management and Erosion	•	•	•	30
Control Program	•	•	•	35
	•	•	•	40
(EO 81-105)		_		4.5
Coastal Barrier Infrastructure Policy Windstorm Insurance Risk Apportionment				49
(Chapter 627.351 (2), F.S.)	•	•	•	51
Chapter 9G-13, F.A.C.)				54
State Land Acquisition Programs				57
4. PROGRAM HIGHLIGHTS AND INTERRELATIONSHIPS .	•	•	•	72
Annendix: References and Resources		_		, G.S

Chapter 1

COASTAL BARRIERS:

AN INTRODUCTION TO THE MANUAL

Background

Florida has one of the highest rates of population growth in the nation, and nowhere is this growth and its associated impacts more evident than on the barrier islands and related landforms which fringe most of the state's coastline. Sixty percent of the state's increase in population is projected to occur in coastal areas, and by 1990 over eighty percent of the state's population is expected to reside in coastal counties. Further, a majority of the state's 32 million tourists visit and stay along the beaches. This explosive growth carries with it the potential for major property damage and loss of life. While there has been a reduction in expected hurricane fatalities each year since 1940, primarily because of improved forecasting and warning systems, the probability of catastrophe has increased because of the reduced capability of the highway system to evacuate the increased coastal population. In addition, the value of coastal property has risen dramatically: an informal survey of county property appraisers indicates that beachfront property values are increasing at an average rate of thirty percent per year. Correspondingly, estimates for damages from an intense storm in

South Florida range between \$1 billion and \$5 billion.

The amenities associated with beachfront living have stimulated demand for residential, commercial and tourist development in areas only marginally suited for such uses. While construction and maintenance costs are higher in coastal areas than on the mainland because of increased transportation and siting requirements, a portion of these costs has been publicly subsidized by flood insurance, beach nourishment and erosion control projects, disaster assistance, and reconstruction of public facilities. Thus, public dollars create incentives for further coastal development. In turn, Floridians have witnessed the visible destruction of sand dunes and shorelines, inadequate water supply and waste disposal capability, increased stormwater runoff, blocked access to long stretches of beachfront, and air and water degradation -- all with full knowledge of the jeopardy to life and property during major storm events. The dynamic but fragile nature of coastal barriers presents a classic example of competition between development and resource protection.

Setting

There are over 1.4 million acres of coastal barriers along the Atlantic and Gulf coasts of the U.S., including over 295 islands. Approximately forty percent of this area is developed or being developed; about thirteen percent is undeveloped and unprotected by government or private groups. Development has been averaging more than 6,000 acres per year.

Coastal barriers, which include bay barriers, tombolos, barrier spits, and barrier islands, are typically described as depositional geologic features which consist of unconsolidated sedimentary materials and are subject to wave, tidal and wind energies. Coastal barriers are generally unstable, shifting with tides, currents, sea level changes, and storms. The typical barrier will include most of the following characteristics: beach, berm, dunes, barrier flats, overwash fans, saltmarsh or mangroves, tidal flats, inlets, and lagoons.

The beach and berm are subject to regular wave action; both may contract and expand on a seasonal basis. Dunes are wind-generated and absorb the energies of the larger storms; vegetation serves to stabilize dunes and enables them to resist greater forces. Barrier flats are typically forested. Salt marshes, tidal flats and lagoons represent the transition zones into the estuaries and bays found behind barrier islands. These are highly productive ecosystems which support a wide variety of species, including commercially important fish and shellfish. The structure of coastal barriers is such that it performs the following functions:

- First-line defense against major storms by dissipation of wave energy;
- 2) Habitat for endangered and threatened species;
- 3) Protection of estuaries used as nurseries and habitats for commercial and recreationally important species;
- 4) Food supply points for migratory species;
- 5) A wide range of recreational opportunities, and;

6) Scientific, aesthetic, and archaeological centers.

In response to the public's concern over the difficult task of balancing the social, economic, and physical needs of a growing population while maintaining or enhancing environmental quality, new initiatives have been taken by federal and State government which are specifically directed toward coastal barrier areas.

Legislation has been enacted to manage coastal resources from cultural and environmental points of view, using regulatory and financial mechanisms. Both federal and State programs are removing development incentives and encouraging public acquisition of coastal properties. Regulatory approaches include performance standards, construction prohibitions, and management schemes. Financial tools include revised insurance schedules and withdrawals of and restrictions on disaster assistance.

In Florida, the 1985 Omnibus Growth Management Act, along with the 1986 revisions, provides local government the ultimate opportunity to address coastal issues in a coordinated manner. Much attention has been focused on the integration of local, regional, and State policies as well as on joint planning for and consistency among local coastal plans. Thus, there is a need for local governments to integrate federal and State coastal programs within the coastal management elements of their comprehensive plans.

Purpose

The purpose of this document is to provide the public and local governments with a concise resource guide to federal and State programs which have the potential to affect coastal management decisions. Currently, there is no single document available which provides an overview of coastal barrier legislation, its regulatory provisions, programmatic intent, planning requirements, or funding opportunities.

Content

The manual is designed to provide a general overview of key federal and State coastal programs and their interrelationships and to be a convenient reference for individual programs. Each program is presented as a separate entry for ease of reference. Program descriptions include highlights pertaining to statutory authority, legislative intent, how programs are funded and implemented, and what are the regulations and restrictions regarding compliance with or admittance to each program.

The final chapter outlines the interactions between programs at the state and federal levels. The appendix includes a list of statutory citations relevant to the programs discussed, a bibliography, and a contact list of federal and State agencies responsible for each program.

The manual highlights the following coastal regulatory and management programs or policies:

- o The National Flood Insurance Program (NFIP)
- o The Coastal Barrier Resources Act (CBRA)
- o The Coastal Construction Control Line Program (CCCL), Section 161.053, F.S.
- o The Coastal Zone Protection Act of 1985: Coastal Building Zones and Codes, Section 161.52 161.58, F.S.
- o Florida's Beach Management and Erosion Control Program
- o Coastal Management Elements of the Local Government Comprehensive Plan, Chapter 163, F.S.
- o The Coastal Barrier Executive Order (EO 81-105)
- o The Coastal Barrier Infrastructure Policy, Section 380.27, F.S.
- o Windstorm Insurance Risk Apportionment, Section 627.351, F.S.
- o Emergency Management,
 - Chapter 252, F.S., and Chapter 9G-13, F.A.C.
- o State Land Acquisition Programs

Chapter 2

FEDERAL PROGRAMS

Federal government involvement in the regulation of coastal development has been primarily a response to minimize the need for disaster assistance and to discourage development in areas where human life may be in jeopardy. Recently, however, the thrust of federal action has been expanded to address land use, building practices, and environmental considerations as well. While the National Flood Insurance Program (NFIP) and Coastal Barrier Resources Act (CBRA) are the most significant federal programs dealing with coastal regulation, there are a number of other programs under a variety of agencies which provide mechanisms for the acquisition and management of coastal properties (see Chapter 3). Current federal policies are shifting the costs of construction and the risk of loss from the federal government to the private sector and State and local governments.

Two programs, not detailed in this manual, deserve brief mention because of their impact on coastal construction and other program provisions. Sections 401 and 402 of the Disaster Relief Act of 1974 (42 USC 5171-2) permit and provide funds for the repair and replacement of flood-damaged federal and local public infrastructure, respectively. When local government decides it is in the public's best interests not to restore facilities,

federal funds of up to ninety percent of the original infrastructure value may be used for new public facilities elsewhere. Also, Section 205 of the 1948 Flood Control Act, as amended, enables local governments to request federal assistance for the technical investigation and construction, within certain cost limitations, of small flood-control projects. Such projects must be in the overall public interest, complete, economically justified, technically feasible, and environmentally sound. Federal interest in the project is another important consideration.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

Background

The National Flood Insurance Program provides previously unavailable flood insurance to property owners and requires special building designs and elevations in flood prone and coastal hazard zones. Prior to the NFIP, the national and state response to flood disasters was limited to the construction of seawalls, levees, and dams, as well as providing financial relief after disasters. practices by themselves did not encourage sound development in floodprone areas. Insurance by private companies was typically unavailable; consequently, the federal government seized the opportunity to use the carrot and stick approach to land use and regulation. Traditionally, American courts have held that land may be regulated by government but may not be taken without just compensation. Therefore, implementation of the NFIP approach is reflected by the fact that local governments may offer their residents flood insurance if they adopt and enforce floodplain management standards set by NFIP for the construction and renovation of buildings. By compliance with guidelines under the program, flood risks are pooled nationwide and insurance premiums are reduced and the loss of lives and property are minimized. The NFIP is administered by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA).

Legislative Intent

The National Flood Insurance Program (NFIP) was enacted under the National Flood Insurance Act (Title XIII of the 1968 Housing and Urban Development Act) and is authorized by 42 U.S.C. 4001-4128. Its intent was to ameliorate personal hardship and regional economic distress associated with flood disasters and to reduce the insufficiencies of then existing construction methods in special flood hazard areas. An additional goal was to encourage state and local governments to adopt and enforce land use measures which would restrict development in flood hazard areas. Section 201 of the Disaster Relief Act of 1974 (Public Law 93-288) authorizes funds for disaster preparation plans, including land use measures which minimize disaster risks. Significant effort on the part of the FIA has been made to reduce total program subsidy and to distribute rates more equitably by charging those in high risk zones proportionally more. The General Accounting Office has concluded that the Act provides FEMA considerable freedom to establish such rates which can minimize national subsidy and make the program more selfsustaining. However, the Congress has not authorized each rate request made by the FIA.

Regulatory Aspects

The program requires participating communities to adopt and enforce floodplain management standards designed to reduce or

avoid flood damage. Community participation in the program is voluntary; local communities enter into an agreement with the federal government to regulate development within flood hazard areas. Floodplain management techniques include, but are not limited to, zoning ordinances, subdivision regulations, building and health codes, and special-purpose coastal ordinances.

Construction requirements in coastal high hazard areas (V-zones) include the following:

- o The lowest floor in all new construction must be at or above the base flood elevation.
- o The space below the base flood elevation must be free of obstruction or be enclosed by break-away walls.
- o Fill may not be used for structural support.
- o All new construction must be landward of mean high tide.
- o Alteration of dunes or mangroves which may increase flood damage is prohibited.

Under Section 44 CFR 60.3, all participating communities are required to provide development permits for all proposed construction to determine whether such development is in a flood-prone area. While standard building permits often satisfy this requirement, additional information is sometimes necessary. In addition, FEMA requires all communities to submit bi-annual reports on the numbers of permits and variances issued in conjunction with other demographic data.

All structures in V-zones and new construction and substantial improvements to existing structures are required to be elevated at or above the base flood elevation. In A-zones, residential

structures must be at or above the base flood elevation by either elevating or by using fill; non-residential structures may be floodproofed to the base flood elevation in lieu of elevation of the structure. FEMA requires floodproofing or elevation of the entire structure when substantial improvements are made which equal or exceed 50 percent of the market value of the structure (excluding building and health code requirements) prior to damages. Certification of lowest floor elevation, V-zone anchoring, and floodproofing for non-residential structures in A-zones are required under the NFIP minimum criteria.

Protection for flood-related erosion was added to the program by the Flood Disaster Protection Act of 1973. The Act, as amended, requires the purchase of flood insurance as a condition for receiving any federal assistance for acquisition or construction purposes on land within identified flood and erosion areas. Where such hazards have been identified and where communities are not participating in the program, federal grants, loans, and guarantees from agencies such as the Small Business Administration, the Federal Housing Administration, and the Veterans Administration are prohibited for acquisition and construction within the hazard areas. In addition, disaster assistance grants and loans for acquisition and construction will not be provided. However, under the temporary housing program, families may receive assistance that is not related to acquisition and construction (e.g., provision for rental units).

Under Florida's emergency management regulations, (Chapter

252, F.S.; Chapter 9G-13, F.A.C.) [pp. 54 - 56], participation in the National Flood Insurance Program is a condition for eligibility on the state's applications to FEMA for public disaster assistance.

To qualify, a community must provide or demonstrate the following:

- Legislative/executive action indicating a need for public assistance;
- 2) Citations of state and local ordinances regulating land use;
- 3) A copy of adopted floodplain management regulations;
- 4) Demographic data;
- 5) A summary of other state and federal flood and erosion control activities within the community;
- 6) A commitment to evaluate all flood and erosion hazards and to carry out program objectives, and;
- 7) A commitment to cooperate with other agencies to provide, maintain, and update all information relevant to program objectives.

Upon adoption of minimum criteria for construction, management, permitting, and enforcement, additional insurance limits are made available.

Failure to adequately enforce locally adopted floodplain management regulations or failure to comply with the criteria for land management and use (Sec. 60 of 44 FR 31177) can result in a community being suspended from the program. When a community is suspended from the program, flood insurance policies cannot be sold or renewed during the period of community ineligibility.

However, after suspension, three-year policies remain in force through the current policy year and the premiums for years two and three are refunded.

Since October 1, 1983, there has been a ban on flood insurance coverage for new construction or substantial improvement of structures on coastal barriers within the Coastal Barrier Resource System, as described in the following chapter. The Program's building standards still apply, however. Insurance policies purchased for coastal barrier properties prior to that date remain valid, if kept enforced.

Financial Aspects

Flood hazard areas are divided into zones of risk and reported on Flood Insurance Rate Maps, Flood Hazard Boundary Maps, or Floodway Maps. Premiums and management measures are in turn based on the degree of risk. Coastal maps may exhibit "V", or velocity zones indicating extensive wave action associated with major storms. There were a total of 38 rate schedules as of January 1986.

Single-family residential coverage is limited to \$185,000, contents to \$60,000; other residential and small business is limited to \$250,000 with a \$300,000 cap on contents. Insurance "add-ons" are available for condominium owners and associations. Minimum premiums were set at \$50.00 regardless of coverage.

Policy Comments

The National Flood Insurance Program, through its land use and construction requirements, influences the nature and cost of development on coastal barriers. This "growth incentive" of the NFIP has been partially mollified by recent actions to redistribute rates and charging significantly higher premiums in high-risk coastal areas.

The state has limited enforcement capabilities due to inadequate staffing and money and a large number of participating communities which result in limited site visits. Therefore, the brunt of enforcement falls to local governments to ensure compliance.

It is postulated that NFIP regulations actually encourage development in coastal high hazard areas by virtue of making insurance available where previously none existed. On the other hand, some argue that the program has discouraged development in these areas by requiring structures to be built to withstand hurricane forces. There is merit in both philosophies.

COASTAL BARRIER RESOURCES ACT (CBRA)

Introduction

The Coastal Barrier Resources Act (CBRA) was enacted as Public Law 97-348 (16 USC 3501 et. seq.) in 1982. The Act is the only federal law which specifically addresses coastal barriers. Congress also recognized that certain federal programs subsidized development which accelerated the loss of barrier resources, threatened life and property, and expended millions of dollars unnecessarily.

Coastal barriers and adjacent wetlands and estuaries are acknowledged to: (1) provide habitat for migratory birds and wildlife; (2) provide habitat and spawning grounds for commercially and recreationally important species of fish and shellfish; (3) contain scenic, recreational, and cultural value; and (4) provide a buffer against storms. Wetlands on the bayside of barrier islands, which are not directly referenced in the CBRA, are specifically addressed under Section 404 of the Federal Water Pollution Control Act of 1972 which strengthened Corps of Engineers' regulation of wetlands adjacent to navigable waters.

The Coastal Barrier Resource System (CBRS) was established under the Act to designate those undeveloped coastal areas which would be affected by the limitation on federal expenditures.

Thirty-three units, totaling 115.5 shoreline miles, of the CBRS were designated in Florida. Alterations, generally to clarify area boundaries were made in 1983 at the request of state

agencies and private interests. The Department of the Interior is currently reviewing and proposing revisions to the CBRS.

Congress must make any changes to the system.

Legislative Intent

This Act prohibits federal financial assistance for new or expanded development on undeveloped coastal barriers which are members of the Coastal Barrier Resource System. Financial assistance includes loans, grants, guarantees, insurance payments, rebates, and subsidies. The law's stated purpose is to "... minimize the loss of human life, wasteful expenditure of federal revenues, and the damage to fish, wildlife, and other natural resources associated with coastal barriers."

Congressional intent is to restrict all federal expenditures and indirect federal assistance which may encourage development, to establish the CBRS, and to consider other conservation means as well, although these last measures are not specified further in the Act. The CBRA does not alter private property rights on coastal barriers, but withdraws federal subsidies for development of lands within the Coastal Barrier Resource System.

Regulatory Aspects

The Act refers to "undeveloped coastal barriers" which are defined as depositional features containing unconsolidated materials subject to wave action and which protect landward aquatic habitat. Also, the barrier must contain "few" manmade structures, and human activities must not have significantly

impeded geomorphic and ecological processes. Finally, the system unit must not be part of any existing federal, State, or local area primarily established for wildlife, recreational, or conservation purposes.

Section 5 of the Act specifies that no federal funds or assistance (loans, grants, insurance, rebates, or subsidies) can be used for the construction or major repair of structures, roads, and access facilities, or the administration of projects for erosion control or inlet and shoreline stabilization. However, federal funds may be used for the maintenance and reconstruction of infrastructure within the CBRS and may also be used for the recreation and resource protection.

Exceptions to the restrictions of the Act permit federal funds to be used for the following:

- exploration, extraction, and transportation of energy resources;
- (2) maintenance of existing jetties and channels;
- (3) the repair, but not expansion, of public roads considered to be essential links in a larger network;
- (4) military activities essential for national security;
- (5) construction, operation, and maintenance of Coast Guard facilities, and;
- (6) other projects consistent with the purposes of the Act, including:
 - a) projects related to study and management of fish and wildlife habitat, including acquisition;
 - b) establishment and operation of navigation aids;
 - c) projects under the Land and Water Conservation Fund Act of 1965 and the Coastal Zone Management Act of 1972;

d) general scientific research;

e) assistance for emergency action pursuant to Sections 305 and 306 of the Disaster Relief Act of 1974 (42 USC 5145-46) and Section 1362 of the National Flood Insurance Act of 1968 (42 USC 4103) and limited to actions to alleviate emergency;

f) maintenance and replacement, but not expansion, of public infrastructure, and;

g) non-structural projects for shoreline stabilization which mimic, enhance or restore natural systems.

The Act does not interfere with state and local rights to protect, preserve, or restore coastal properties in their respective jurisdictions.

Emergency assistance, pursuant to Public Law 93-288 (42 USC 5174) and carried out by FEMA, is available to remove debris, protect life and property, provide shelter, restore services and access, relocate individuals, and provide mortgage and rental assistance. This federal assistance must, however be approved through consultation of the FEMA Regional Director and the Secretary of the Interior. Requirements for receiving disaster assistance are specified in 44 CFR 205.

The Act provides for five-year reviews of system units for minor and technical boundary changes, primarily to deal with natural fluctuations.

Policy Comments

The Coastal Barrier Resources Act is, in part, a limitation on the National Flood Insurance Program. While both attempt to minimize the impacts of flood risk on the federal treasury, the NFIP aims to control development primarily through performance standards (i.e., building codes and land use constraints), while

the CBRA withdraws federal financial assistance. The National Flood Insurance Program only regulates areas based on the existence of hazardous conditions, whereas the Coastal Barrier Resources Act governs regions defined by density, infrastructure, and habitat. It should also be noted that the prohibition of flood insurance within CBRS units does not relax mandatory compliance with NFIP building code and land use requirements.

The Governor's Executive Order (EO 81-105) and related

Letter to Agency Heads of August 8, 1986, address coastal

barriers, and in part restrict State funding for infrastructure

within the CBRA units as well as other specified areas (see pg.

45).

Chapter 3

STATE PROGRAMS

Florida has adopted a multi-program approach, involving numerous State agencies, for managing its coastal barriers. The following section of the manual will describe the measures, from executive orders to building codes to legislative prescriptions, which collectively affect coastal barriers and related areas.

The 1985 Omnibus Growth Management Act has been a catalyst for much of the recent attention being focused on coastal barrier islands and beaches. The following two chapters specifically highlight the 1985 and 1986 legislative initiatives relating to coastal infrastructure policy, comprehensive planning, and enhanced coastal construction requirements. The text is not limited to the subject of growth management legislation, however; several other significant State "coastal" programs are reviewed. The intent is to provide an overview of Florida's coastal management framework as it relates to coastal barriers.

THE COASTAL CONSTRUCTION CONTROL LINE PROGRAM

Background

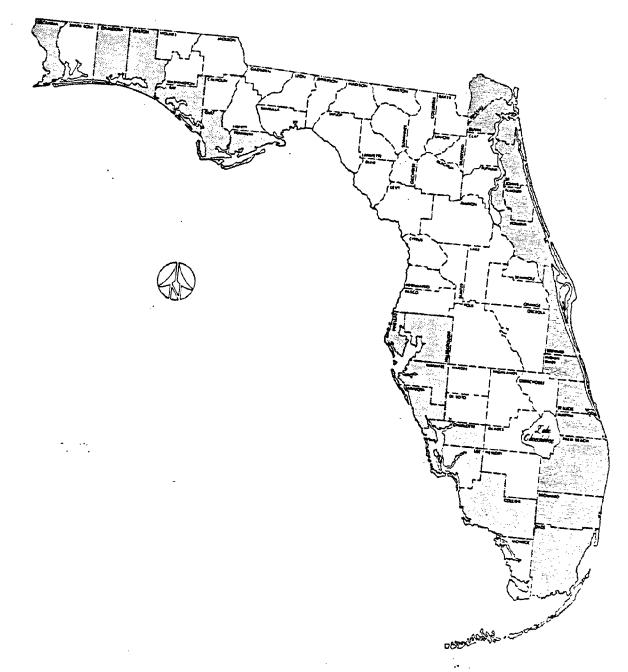
The Beach and Shore Preservation Act, Chapter 161, Florida Statutes, was created by the Legislature in 1965 to preserve the integrity of Florida's beaches and dunes through the regulation of coastal development. Since initial passage, several substantial amendments to Chapter 161 have been made. The most significant change was the implementation of the Coastal Construction Control Line (CCCL) Program, pursuant to Section 161.053, F.S, in 1971.

Although the control line program is extremely complex and often misunderstood, it has a single responsibility to predict the zone or area of severe impact of the 100-year storm event (i.e., a major hurricane) and to administer regulations which reduce structural damage and beach erosion within that zone.

Program Overview

Program jurisdiction is determined through the establishment and periodic reestablishment of coastal construction control lines on a county-by-county basis for sandy beaches fronting the Atlantic Ocean or Gulf of Mexico. These legally recorded lines of jurisdiction, which define the active beach-dune system, vary from a few to several hundred feet landward of mean high water (the average of recently reestablished lines is approximately 500 feet). Location is a function of predicted storm surge,

Coastal Construction Control Line Program Counties



erosion, existing topography and, of course, the change in physical conditions since the time of previous establishment.

Permits from the State of Florida, through the Department of Natural Resources, are required for all construction and excavation activities seaward of established control lines. The three-fold purpose of this permitting program is to insure that if there is to be coastal construction seaward of established control lines, it must be designed and sited in such a manner as to protect beach and dune areas from damage; to insure that construction activities at one location will not cause accelerated beach erosion on adjacent properties; and lastly, to enhance the survivability of permitted structures under severe storm conditions.

Control Line Establishment

Since 1971, the Governor and Cabinet, as head of the Department of Natural Resources, have established coastal construction control lines in all 24 eligible coastal counties. Subsequently, several counties have been resurveyed and restudied, resulting in the relocation or "reestablishment" of their coastal construction control line. Control line establishment is an ongoing program in recognition of the dynamic nature of Florida's beaches. The inadequacy of many of the control lines established in the 1970s was addressed by the 1985 Legislature when it directed the Department of Natural Resources to give

"critical" priority to the reestablishment of all control lines which have not been updated since June 30, 1980. This amendment requires the Division of Beaches and Shores in the Department of Natural Resources to greatly accelerate its restudy and reestablishment schedule.

Control line establishment requires two significant efforts:

(1) field data collection, and (2) storm surge and erosion

analyses.

Topographic information relating to the condition of the state's beaches is collected on a continuing basis. The basis of field data collection is the maintenance of reference monuments installed at 1000-foot intervals along Florida's entire sandy beach shoreline. Prior to control line reestablishment, beach profiles are taken at each monument from behind the dunes into the surf, with special features such as vegetation and existing structures noted and recorded using ground photography. Offshore profiles are surveyed using the same reference monuments extending from the surf to about 3000 feet offshore to water depths of 25 to 35 feet.

The Department of Natural Resources, through the Division of Beaches and Shores, considers this topographic information, along with engineering/storm surge analyses, to determine if a landward relocation of a control line is necessary to protect upland property and to control beach erosion. If such studies indicate the need for control line relocation, a public hearing must be held in the affected county. Subsequently, the Department

considers the following:

- o Results of public hearing;
- o Ground elevations in relationship to historical storm and hurricane tides;
- o Effect of waves;
- o Beach, offshore, and ground contours;
- o Vegetation lines;
- o Erosion trends:
- o Dune or bluff lines, and;
- o Existing upland development.

Coastal construction control lines are set by the Governor and Cabinet, after a noticed public hearing, and become effective upon filing with the Department of State. Descriptions of established control lines may be found in Chapter 16B-26, F.A.C., and surveys are on file in each affected county and municipality.

Construction Seaward of Coastal Construction Control Line

Upon establishment of a coastal construction control line, all construction and excavation activities seaward thereof require a State permit from the Department of Natural Resources. The rules and procedures to obtain such permits are found in Chapter 16B-33, F.A.C. The Department may issue a permit upon receipt of a completed application from a property owner and after consideration of the facts and circumstances, including:

adequate engineering data concerning shoreline stability and storm tides related

to shoreline topography, design features of the proposed structures or activities, and potential impacts of the location of such structures or activities including potential cumulative effects of any proposed structures or activities upon such beach-dune system, which in the opinion of the department, clearly justify such a permit. (161.053 (5)(a))

Projects permitted under the control line program share many common characteristics, including the following:

- o All habitable structures are pile-supported, elevated based on the projected 100-year storm surge, and designed to withstand 140 mph winds.
- o Existing beach topography is protected by a general prohibition against major excavation.
- o Maximum effort is made to preserve all native, stabilizing vegetation.
- o Seawalls generally are not allowed, nor are all nonessential coastal-protection structures.
- o In severely eroding areas, structures are located as far landward as is physically possible without regard to the line of existing construction.
- o All construction is designed to minimize erosive effects.
- o All activities contrary to program rule or practice are mitigated by removal, prosecution, or civil fines of up to \$10,000 a day.

There are several exemptions to control line permitting requirements:

- (1) Structures intended for shore protection purposes seaward of mean high water which are regulated by another State permitting program administered by the Department of Natural Resources pursuant to Section 161.041, F.S.
- (2) Construction activities on vegetative non-sandy shores.
- (3) Modification of, maintenance of, or repair to any

existing structure within the limits of the existing foundation, which does not require any addition to, repair of, or modification of the existing foundation. Not included in this exemption are seawalls and additions or enclosures below the first floor of an existing structure.

- (4) Those structures existing or under construction prior to establishment or reestablishment of a control line (i.e., grandfathered structures).
- (5) The construction of offshore structures.
- (6) Construction or excavation activities on federallyowned lands.
- (7) Very minor activities, as described in 16B-33.04 (7), F.A.C., may fall outside of the scope of program intent and thus be exempted from permitting requirements at the discretion of staff.

A New Permit Consideration: Thirty-Year Erosion Projections

As part of the 1985 Omnibus Growth Management Act, the Legislature created Section 161.053 (6), F.S. which prohibits the Department of Natural Resources from issuing coastal construction control line permits for most major structures proposed in a location which, based on erosion projections, will be seaward of the seasonal high water line within 30 years.

This provision is not applicable to coastal and shore protection structures, minor structures, piers, or intake and discharge structures for a facility sited pursuant to Chapter 403, F.S. Further, when the application of the thirty-year erosion projection would preclude construction of a structure, the Department may issue a permit for a single-family dwelling under the following conditions:

(1) The parcel was platted or subdivided before October 1, 1985;

- (2) The owner of the affected parcel does not own an adjacent, landward parcel;
- (3) The proposed single-family dwelling will be located landward of the frontal dune, and;
- (4) The proposed single-family dwelling will be as far landward as practicable without being located seaward of or on the frontal dune.

The rules and procedures relating to thirty-year erosion projections are provided in Section 16B-33.24, F.A.C. They provide for site-specific determination as part of the overall control line permit review process. Thirty-year erosion projections involve calculations based on historical erosion data and take into consideration the effects of existing coastal protection structures and existing or planned beach nourishment. These erosion projections are subject to review pursuant to Chapter 120, F.S., as are all agency final actions.

COASTAL ZONE PROTECTION ACT OF 1985: COASTAL BUILDING ZONES AND CODES

Authority and Intent

The 1985 and 1986 sessions of the Florida Legislature addressed the need for additional coastal management employing stricter building standards in specified "coastal building zones." Specifically, pursuant to Sections 161.53 - 161.56, it is "the intent of the Legislature that the most sensitive portion of the coastal area shall be managed through the imposition of strict construction standards in order to minimize damage to the natural environment, private property, and life." (s.s. 161.53 (5))

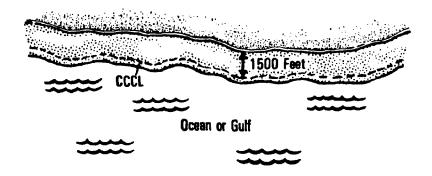
Coastal Building Zones

According to the definitions provided in Section 161.54, F.S., three types of coastal building zones are established.

(1) For mainland beaches, barrier spits, and peninsulas, the coastal building zone is the land area from the seasonal highwater line landward to a line 1,500 feet landward of the coastal construction control line, the jurisdictional line established, pursuant to Section 161.053, for each county having sandy beaches fronting the Atlantic Ocean, Gulf of Mexico, Florida Bay, or Straits of Florida.

COASTAL BUILDING ZONES

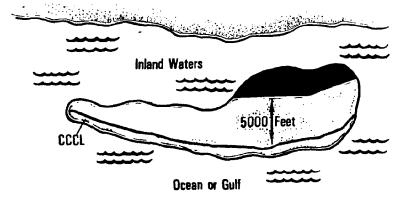
Mainland Sandy Beaches, Spits, Peninsulas



(2) For coastal barrier islands, the coastal building zone is the land area from the seasonal high-water line to a line 5,000 feet landward of the coastal construction control line, or the entire island, whichever is less.

COASTAL BUILDING ZONES

Barrier Islands



(3) For those coastal barrier areas fronting on the Gulf of Mexico, Atlantic Ocean, Florida Bay, or Straits of Florida which do not have established coastal construction control lines, the coastal building zone is the land area seaward of the most landward velocity zone (V-zone) established by FEMA and as depicted on flood insurance rate maps.

Two exceptions to these definitional types should be noted.

(1) All land areas in the Florida Keys, located within Monroe

County, are included in the coastal building zone. (2) The other
exception applies to all coastal barrier islands between

Sebastian and Fort Pierce Inlets. The coastal building zone on
any island located between the subject inlets may be reduced in
size with the approval of the Governor and Cabinet, sitting as
the Land and Water Adjudicatory Commission. The Commission must
find that the affected local government has provided adequate
protection for the entire barrier island, and in no instance
shall the coastal building zone be reduced to an area less than a
line 2,500 feet landward of the coastal construction control
line.

Coastal Building Codes

For those land areas lying within the previously described "coastal building zones," the Legislature has set forth structural building requirements for enhancing the quality of coastal construction.

There are four defined categories of structures to which differing construction standards apply. They include major, minor, nonhabitable major, and coastal or shore protection structures. Generally, structures must conform to the State minimum building code in effect in the jurisdiction, as identified in s. 553.73, F.S. Further, structures must be designed, constructed, and located in compliance with National Flood Insurance Program regulations as found in 44 C.F.R., Parts 59 and 60, or a local flood damage prevention ordinance, whichever is more restrictive.

One specific provision of note is that major structures, with the exception of mobile homes, must at a minimum be designed and constructed in accordance with Section 1205 of the 1986 revisions to the 1985 Standard Building Code, using a fastest mile-wind velocity of 110 miles per hour. The Florida Keys must use a fastest mile-wind velocity of 115 miles per hour. Also, foundations for major structures must be designed and constructed to withstand all forces associated with a 100-year storm event.

These minimum building standards do not preempt the imposition of more stringent requirements seaward of established coastal coastal construction control lines by the Florida Department of Natural Resources pursuant to Section 161.053, F.S. Further, local governments may enact and enforce more restrictive building codes.

Each local government whose jurisdiction includes a coastal building zone must adopt these "minimum" standards as part of its local building code. To assist such local governments, the Department of Community Affairs will administer a biennial coastal building zone construction training program for local enforcement agency personnel, develop a deemed-to-comply manual, and distribute other associated information.

The subject coastal building code must be adopted by affected local governments not later than January 1, 1987.

Non-compliance by local governments may result in the imposition of sanctions by the Governor and Cabinet (Chapter 163, F.S.).

Comparative Program Impacts

These State building requirements mandate use of those requirements for participation in the National Flood Insurance Program (NFIP), assuring a certain degree of consistency in the quality of coastal construction. However, the State's coastal building regulations are not limited to flood-related construction techniques as are those of the NFIP. State requirements also encompass wind- and wave-force construction techniques. Although requirements within the "coastal building zone" are generally more restrictive than those for inland areas subject to the Standard Building Code, they are not as restrictive as those found within the Department of Natural Resources purview seaward of the Coastal Construction Control Line (CCCL).

FLORIDA'S BEACH MANAGEMENT AND EROSION CONTROL PROGRAM

Authority and Intent

For the past two decades, Florida has participated in beach erosion control projects, pursuant to Chapter 161, F.S. During this period, State funding involvement in locally-sponsored projects has varied considerably and has largely been restricted to beach restoration and subsequent renourishment. Additionally, support has been provided for dune restoration, revegetation, and dune walkovers.

The 1986 session of the Legislature made substantial changes to Florida's beach erosion control program. Amendments to Chapter 161 clearly acknowledge that the State's reactive strategy to locally-initiated erosion control projects has not adequately addressed the severity of Florida's beach erosion problems. Specifically, s.s. 161.101 (1) was amended this past session to read:

The Legislature recognizes that beach erosion is a statewide problem that does not confine its effects to local governmental jurisdictions and that beach erosion can be adequately addressed most efficiently by a State-initiated program of beach restoration and renourishment.

The 1986 Legislature further recognized that inlets have altered the natural drift of Florida's sand resources and, in turn, created specific policies and procedures for inlet sand

transfer and placement to approximate the natural net annual longshore sediment transport.

State Initiative: Program Implementation

Amendments in 1986 to Section 161.161, F.S., direct the Department of Natural Resources to develop and maintain a comprehensive long-term management plan for the restoration of Florida's critically eroding beaches.

This requisite management plan must:

- 1) Address long-term solutions to the problem of severely eroding beaches within the state.
- 2) Evaluate each improved navigational inlet to determine to what extent it is contributing to the erosion of adjacent beaches. The plan must present specific recommendations to mitigate the erosive impact of each inlet.
- Provide design criteria for beach restoration and renourishment projects.
- 4) Consider and evaluate the establishment of feeder beaches as an alternative to direct beach restoration.
- 5) Establish a State priority list of beach restoration and renourishment projects.

This statewide beach restoration management plan will be prepared by DNR district, based upon greatest need and the probability of federal funding. The district plan submission schedule, as adopted by the Governor and Cabinet on July 29, 1986, is as follows:

FY 1986-87 - District III, Pinellas County
District IV, Manatee through Collier Counties
District VI, Brevard through Dade Counties

FY 1987-88 - District I, Bay through Escambia Counties
District II, Franklin through Gulf Counties
District V, Monroe County
District VII, Nassau through Volusia Counties

Any completed district plan must be submitted to the Governor and Cabinet, as head of the Department of Natural Resources, no later than March 1 of each year, and shall include recommendations regarding potential funding mechanisms. Specific project funding requests, based upon the priority listing in the plan, will be presented annually in September.

State funding from the Erosion Control Trust Fund may be authorized in an amount up to 75 percent of the actual costs for restoring and renourishing a critically eroded beach. The local government in which the beach is located will be responsible for the balance of costs.

Establishing Restoration Project Priorities

Given the change in program emphasis from local initiative to a statewide beach management strategy, the 1986 Legislature further provided statutory criteria for establishing project priorities. The Division of Beaches and Shores, Department of Natural Resources, in developing the recommended list of restoration and renourishment projects, must consider and balance the following criteria:

- o Estimated user-occasions that would be served by a larger restored beach;
- o The extent of existing and potential damage to property from erosion;
- o The prospect for long-term project success as measured

by the amount and frequency of future renourishment;

- o Project location in relationship to the statewide priorities for addressing severe beach erosion;
- o The total estimated costs of the project, including periodic renourishment;
- o The proximity and quality of an adequate source of beach-compatible sand;
- o The degree of public access, including adequate vehicle parking;
- o The degree of public support for the project;
- o The anticipated project impact on natural resources, including reefs, vegetation, fishing resources, and turtle nesting, and;
- o The extent to which local governments have provided for the protection of sea turtles from the adverse effects of beachfront lighting.

The extent to which these criteria are addressed by a project in a net-positive manner will result in a greater assigned priority. Certain criteria are in fact requirements in terms of eligibility for State funds. A project must provide adequate public access and protection for historically established habitats and endangered and/or threatened species.

Comparative Program Impacts

This State beach restoration initiative is in response to the growing severity of Florida's beach erosion problems. It is a proactive, statewide strategy to address the most critical segments of the shoreline. It is not the intent of the subject amendments to reduce or alter the existing coastal protection requirements of the State's other regulatory, permitting, or

management programs. Further, it is not the intent of the Legislature to influence local government decision making as it relates to the preparation and implementation of the coastal management elements of the comprehensive plan, pursuant to Chapter 163, F.S.

COASTAL MANAGEMENT ELEMENTS OF THE LOCAL GOVERNMENT COMPREHENSIVE PLANS

Authority and Intent

Historically, comprehensive coastal planning has largely been preempted by site-specific state and local regulatory decisions. In turn, this site-by-site, piecemeal approach to coastal preservation, when coupled with what are, in most cases, vague and general coastal protection elements of the Local Government Comprehensive Plan, has not provided many communities with an essential, overall coastal management strategy.

In response to this inadequate linkage between planning and practice, the 1985 Omnibus Growth Management Act substantially expands and strengthens the criteria for the required Coastal Management Element of each local plan. As a result, the 1985 coastal amendments to Chapter 163, F.S. offer State and local governments an opportunity to address major coastal issues facing Florida and to guide future coastal development in a consistent and prudent manner based upon specific policies and priorities.

Unlike past planning efforts, the 1985 Legislature provided clear policy direction for the preparation of coastal management elements:

... it is the intent of the Legislature that local government comprehensive plans restrict development activities where such activities would damage or destroy coastal resources and that such plans protect human life and limit public expenditures in areas that are subject to destruction by natural

disaster. (s.s 163.3178 (1))

Coastal Management Policies

Chapter 163, F.S., and the implementing rules, Chapter 9J-5, F.A.C, detail explicit subject areas relating to goals, objectives, and policies which must be addressed by each affected local government in the preparation of their coastal elements. The required components of the coastal elements, discussed in the subsequent section, are collectively intended to accomplish the following objectives:

- o Protect remaining natural and historic resources of the coast;
- o Direct population away from coastal high-hazard areas;
- o Provide priority shoreline use for marinas, public beach access, coastal recreation and other waterdependent activities;
- o Maintain or reduce hurricane evacuation times;
- o Manage development and redevelopment in coastal highhazard areas to minimize risks to life and property;
- o Restrict public expenditures which subsidize development in coastal high-hazard areas;
- o Protect and enhance beach and dune systems, and;
- o Ensure that public facilities and services are in place to meet development and redevelopment needs.

The recent legislative emphasis on coastal issues, as depicted in the comprehensive nature of the above policies, can not be overstated. This concern is further reflected in the schedule for plan adoption which requires coastal counties and corresponding coastal municipalities to begin submitting plans to the Department of Community Affairs a year earlier than non-

coastal jurisdictions (beginning on July 1, 1988, and on or before July 1, 1990). The determination of those jurisdictions required to prepare a coastal management element may be found in the document entitled "Local Governments Required to Include Coastal Management Elements in Their Comprehensive Plans," dated November 25, 1985, and available from the Department of Community Affairs upon request. The submission schedule is provided in Chapter 9J-12, F.A.C.

Requirements of the Coastal Management Element

Section 9J-5.012, F.A.C., specifically sets forth the required minimum content of the coastal element which will subsequently serve as a basis for State review and determination of compliance.

A Coastal Management Element is to be based upon the following minimum inventory and analysis requirements:

- o An inventory of existing land uses in the coastal area with an analysis of shoreline conflicts, an estimate of need for water-dependent and water-related uses, and an analysis of the economic base of the coastal area;
- o Inventories and analyses of the effect of future land uses on natural resources in the coastal area including vegetative cover, wetlands, areas subject to coastal flooding, wildlife habitat, living marine resources, and other areas of special concern to the local government;
- o An inventory and analysis of the impacts of development and redevelopment on historic resources and sites in the coastal area;
- o An inventory and analysis of estuarine pollution conditions and actions needed to maintain or improve estuarine environmental quality;

- o Inventories and analyses of natural disaster planning concerns, including:
 - A hurricane evacuation analysis which considers appropriate measures to maintain or reduce hurricane evacuation times;
 - 2) A post-disaster redevelopment plan which addresses land use in coastal high-hazard areas; structures with a history of repeated storm damage; coastal-protection structures (i.e., seawalls, revetments, groins, etc.); infrastructure in coastal high-hazard areas; and beach dune system conditions. An analysis of measures to reduce exposure to hazards must be included and should consider relocation, structural modification, and acquisition; and
 - 3) Identification of coastal high-hazard areas and corresponding infrastructure analysis.
- o An inventory and analysis of beach and dune systems including erosion/accretion trends, structural impacts, and identification of areas needing enhancement or restoration;
- o Inventories and analyses of the capacity and need for public access and recreational facilities, and;
- o Inventories and analyses of demand, capacity and areas served by existing infrastructure; and an assessment of future need, cost and funding sources for such facilities.

Included in the element is a "miniature" coastal management requirement for jurisdictions having deepwater ports.

Most importantly, a local government's Coastal Management Element must provide detailed guidance for the regulatory and management techniques that will restrict imprudent development activities.

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Policy Comments

A clear purpose, specified content, an expanded emphasis, and required consistency distinguish the new Coastal Management Element from its predecessor. Nevertheless, the desired outcome remains the same: local government identification of goals, specification of objectives, and the implementation of policies and regulations for achieving such.

The extent to which the final product results in an integrated coastal management framework will largely be dependent upon a given coastal element's degree of sensitivity for the goals and objectives of the other federal and State coastal programs discussed herein.

COASTAL BARRIER EXECUTIVE ORDER (EO 81-105)

Background

Despite the increased risks to life, property and natural ecosystems caused by development on coastal barriers, many State programs and activities have subsidized further growth and post-disaster redevelopment. Roads, bridges, and water and wastewater facilities encourage development, while erosion control, beach nourishment, acquisition, and disaster relief transfer the costs of growth to the taxpayer.

In response, Executive Order 81-105 was signed September 4, 1981. The Order recognized the values of coastal barriers and set forth three directives to State agencies concerned with coastal issues (the Departments of Commerce, Community Affairs, Environmental Regulation, Health and Rehabilitative Services, Transportation, and the Office of Planning and Budgeting):

- Coastal barriers were to be given priority in acquisition programs;
- 2) Federal and State monies were to be directed to areas which could accommodate growth and were not to be used to subsidize the growth or post-disaster redevelopment of hazardous barriers, and;
- 3) Agencies were to manage growth in a manner consistent with evacuation capabilities.

The order made no provisions with respect to land use and its regulation.

Many issues arose during the early implementation of the Order, including lack of legislative authority, lack of defined

extent, and the need to delineate which State funding programs were affected. The Governor requested public workshops to be held by the Interagency Management Committee to discuss these issues and to develop recommendations for improving the Order.

A letter to agency heads, signed by the Governor on August 8, 1986, recognizes new factors brought about by the Coastal Zone Protection Act of 1985, the revisions to the Local Government Comprehensive Planning Act, and the recommendations generated by the Governor's Office of Planning and Budgeting and by the agencies responsible for implementation.

Intent

The Governor's recent letter updates EO 81-105 and serves as a transition policy for the period between October 1985 (the effective date of the Omnibus Growth Management Act) and the implementation of coastal regulations under the LGCPA and LDRA (effective in 1988-90). The letter affirms actions taken concurrent with EO 81-105. Five measures are proposed to the relevant departments during the phase-in period of the subject growth management measures.

Provisions

- State funds for infrastructure and economic development should be denied for any barrier island without a bridge or causeway. State law prohibits building bridges and causeways to these islands, and the State should not encourage development on islands with severe evacuation difficulties.
- 2) The State should not pay to expand infrastructure or economic development in any designated unit of the

Federal Coastal Barrier Resources System.

- 3) To ensure maximum coordination with local plans, prevent unwise expenditure of funds or poor siting of facilities, and forestall increased building in coastal high hazard areas, agency heads shall not permit payment by the State for new or expanded infrastructure projects seaward of the Coastal Construction Control Line, in FEMA designated V-zones, in areas damaged or undermined by coastal storms, or at inlets without structural controls. After alternatives, including relocation, have been evaluated, exceptions can be made where crucial need is found to alleviate dangerously overcrowded roads or replace defective wastewater facilities violating water quality standards. Agency heads may authorize payment for projects within the Coastal Building Zone as defined in Sections 161.54 (1) and 161.55 (5), F.S., that are not included in the areas described above only if the potential danger to human life and property from natural hazards is minimal and consideration has been given to hazard mitigation standards, including floodproofing and evacuation.
- 4) State monies can be made available to repair or replace storm-damaged facilities in hazardous coastal areas if such action is in the overall long-term public interest, and hazard mitigation, including relocation alternatives, is fully evaluated. If justified, the replacement must be at the same or less capacity than the original facility.
- 5) State funds may be expended in coastal areas if consistent with approved resource planning and management plans, pursuant to Section 380.045, F.S., and comprehensive plans approved pursuant to Section 380.05, F.S.

Summary Comments

The overall policy of the Order and letter is the same.

There will be reduced continued public expenditures for infrastructure which is susceptible to repeated storm damage.

State subsidy of private investment is discouraged. Further growth in hazardous coastal areas will be limited by restricting the capacity of repaired and replaced infrastructure. The Order

and letter support the State's infrastructure policy (Section 380.27, F.S.) and the State's emergency management regulations.

COASTAL BARRIER INFRASTRUCTURE POLICY

Authority and Intent

The Florida Legislature enacted a coastal barrier infrastructure policy as part of the 1985 Omnibus Growth Management Act. Sections 380.27 and 163.3178(h), F.S., were created to discourage growth and unwise development on coastal barriers by withholding State funding for specified activities within designated areas.

Policy Provisions

The coastal barrier infrastructure policy includes two separate policy provisions.

- (1) No State funds shall be used to build bridges or causeways to coastal barrier islands which are not accessible by bridges or causeways. The effective date of this provision was October 1, 1985.
- (2) No unobligated State funds shall be expended for the purpose of planning, designing, or constructing projects which increase the capacity of infrastructure unless such an expenditure is consistent with an approved coastal management element. This provision is applicable to all local governments required to prepare a coastal management element, and is effective at the time the element is approved. This policy provision is implemented by cross-reference to s. 163.3178 (h) which requires, as part of the coastal management element, local government designation of high hazard coastal areas subject to destruction or severe damage by natural disasters.

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The effectiveness of this policy will be reviewed annually and reported by the Department of Community Affairs to the Governor, the President of the Senate, and the Speaker of the House of Representatives.

Policy Comments

Florida's coastal barrier infrastructure policy shares a common implementation mechanism with the Federal Coastal Barrier Resources Act, which is the withdrawing of subsidies or withholding of funds. The distinction in federal and State programs is in the areas of impact. The Federal Coastal Barrier Resources Act addresses only undeveloped areas. In contrast, Florida's infrastructure policy is applicable to coastal high-hazard areas regardless of the degree of development. It is important to note, however, that the only direct funding prohibition in the State policy is for bridges or causeways to islands not already served by such. The thrust of State policy is, instead, consistency between effective coastal planning and implementation, employing the newly-enacted requirements of the coastal management elements of the comprehensive plan to effectuate the State's coastal barrier infrastructure policy.

WINDSTORM INSURANCE RISK APPORTIONMENT (Section 627.351 (2), F.S.)

Introduction

Amendments made in 1986 to Chapter 627.351, Insurance Risk Apportionment Plans, were enacted to ensure conformity with recent growth management initiatives. The statute permits insurers to agree among themselves as to the modification of rates and the apportionment thereof for windstorm insurance policies issued to qualified applicants. The Department of Insurance is empowered to adopt a plan for equitable apportionment should such agreement not be possible. The plan may authorize the formation of a non-profit corporation, association, or mutual company to borrow funds and accumulate reserves to pay catastrophic losses.

Participating insurers share in the writing and in the profits and losses of policies. Participation is apportioned according to the percentage each insurer represents of the total net direct premiums written by all members during each preceding year. Limited apportionment is available to certain qualifying institutions.

As of August 1986, parts or all of 21 coastal counties were receiving coverage under the apportionment plan. While the boundaries for insured areas vary significantly, widths tend to average between 1000 and 1500 feet from the mean high water line.

Legislative Intent

It was the intent of the Legislature to require all property insurance companies operating in Florida to provide windstorm insurance to eligible applicants who are in good faith entitled to, but unable to obtain, such coverage through ordinary means. Provisions of coverage are to be extended where they will further the policies and objectives of all applicable State laws and rules related to coastal zone protection.

Regulatory Aspects

Properties eligible for coverage include all dwellings, buildings and other structures, including mobile homes which are tied down in compliance with the requirements of Section 320.8325, F.S.

Eligibility is determined by areawide designation by the Department of Insurance or where, after a public hearing conducted by the department, the following criteria are found to exist:

- (1) Due to the lack of windstorm insurance in the area, economic development has been stifled, mortgages may be in default, and institutions have been unable to make loans;
- (2) The county or area affected has adopted and enforces all requirements of the Standard Building Code and has included minimum first floor requirements where appropriate, and;
- (3) Providing windstorm insurance coverage is consistent with and will implement all policies set forth in State laws, rules, and regulations governing coastal management, beach preservation, and comprehensive planning.

Following a public hearing, the Department of Insurance may declare an area ineligible for windstorm coverage under an apportionment plan if it determines that any of the above criteria no longer exist.

It is the applicant's responsibility to show compliance with the above criteria. Application is not restricted to political subdivisions; developers and property owners may request a hearing.

Impacts

Windstorm insurance complements the coverage provided by the National Flood Insurance Program. The addition of the new constraint that insurance will be extended only if it will further coastal growth management objectives serves to minimize coverage in environmentally-sensitive and storm-hazard areas while providing coverage for areas which have adopted consistent coastal plans. However, it must be recognized that extending coverage to hazardous areas represents a subsidy from other property owners. Coverage may result in some additional development on coastal barriers; however, the intent of the statute is to provide insurance only for existing property owners in impacted areas.

EMERGENCY MANAGEMENT (Ch 252, F.S.; Ch 9G-13, F.A.C.)

Background

Through Chapter 252, F.S., the Department of Community
Affairs is given the authority to set up programs and establish
requirements for hazardous areas via land use control. Section
252.35 (2)(e) authorizes the Division of Emergency Management to
make recommendations for zoning, building, and land use control
in addition to safety measures for securing non- or semipermament structures, i.e., mobile homes. The Department,
pursuant to Rule 9G-13*, requires "responsible preventative
disaster preparedness measures" to qualify for federal public
disaster assistance.

Rule Purpose

The purpose of Rule 9G-13 is to facilitate the delivery of federal disaster assistance and to institute preventative measures which minimize the effects of emergencies which may be aggravated by inadequate land use and facilities planning in coastal areas. The rule promulgates criteria by which the state exercises discreation in approving applications for federal disaster assistance. The rule affects disaster assistance

^{*}This overview of the Emergency Management Program reflects a number of proposed amendments to Rule 9G-13 expected to be adopted by December 31, 1986.

applications of political subdivisions only until their local government comprehensive plan is determined to be in compliance pursuant to Part II of Chapter 163, F.S. Political subdivisions include all counties and municipalities required to develop coastal management elements as part of their local government comprehensive plans. Applicants other than political subdivisions are not considered under the draft rule.

Provisions in the rule are intended to minimize the potential for increased public infrastructure capacity and industrial use in coastal high hazard areas. The intent was to reduce the need for the restoration of public infrastructure damaged by major storms after July 15, 1986.

Financial Impact

Only funds to provide assistance to restore damaged public infrastructure under the Federal Disaster Relief Act of 1974 (Public Law 93-288) are affected by the rule. Funds for individual assistance under the Act are unaffected.

Regulatory Aspects

Section 9G-13.004 makes eligible for public disaster assistance only those damages included on the State's application to FEMA. Following a disaster, DCA's Division of Emergency Management coordinates an assessment of damages with assistance from federal, State, and local agencies. Political subdivisions shall be included in State applications only if they have adopted

hazard mitigation plans or contracted with DCA, pursuant to Section 9G-13.005 which requires the following:

- 1) Compliance with Section 161.56 (1), F.S.;
- 2) Participation in the National Flood Insurance Program in conformance with the Federal Disaster Relief Act of 1974;
- 3) Maintenance of the same capacity of public infrastructure relocated, modified or replaced as a result of damages from a natural disaster, unless the capacity is expanded as part of an approved post-disaster hazard mitigation plan in accordance with Public Law 93-288;
- 4) Establishment of a public information system for notifying the public about emergencies; the potential dangers of and appropriate preparatory measures for natural disasters; flood hazard areas; and evacuation routes;
- 5) Implementation of preventative planning measures to include provisions that sites be designed to utilize and preserve the protective capability of dunes, other natural topographic features, and vegetation, where feasible, to ameliorate storm damage, and;
- 6) Determination on a case-by-case basis whether heavy industrial operations, with processes or products potentially dangerous to public safety or the environment, can be constructed in a coastal high hazard area based on consideration of local zoning regulations, availability of alternative sites, the impact on public infrastructure, the costs to the community at large, and environmental risks.

Political subdivisions are not subject to this rule until they have received notification of the requirements of the rule from the Division of Emergency Management. Subdivisions have six months to comply with the rule's requirements. Should a natural disaster occur within six months of notification, evidence of intent to comply prior to the six-month limit will qualify a subdivision for inclusion in the State's application.

STATE LAND ACQUISITION PROGRAMS

Florida has experienced a surge of growth which has continued since World War II. Current projections place Florida as the fourth most populated state by 1990 and perhaps the third in by 2000. Such growth has generated heavy demands on the State's land and water resources. In response, the State has been innovative in forging intergovernmental partnerships with both federal and local governments to acquire property which protects these resources. The State now has the most extensive acquisition program in the nation in terms of dollars spent and acreage purchased.

Subsection 259.04 (1)(b), F.S., authorizes the Governor and the Cabinet, as the Board of Trustees of the Internal Improvement Trust Fund, to develop and execute a comprehensive plan to conserve and protect environmentally endangered lands. Between 1972 and 1979, the Environmentally Endangered Lands program acquired over 393,000 undeveloped acres using funds from a \$240 million bond issue. Since 1979, several new state programs have been initiated to acquire and manage properties for recreational as well as for conservation and environmental protection purposes.

It should be added that there are a number of federal agencies and programs which provide mechanisms for the acquisition and management of coastal property, both through direct purchase and

by financial matching.

The Land and Water Conservation Fund, a separate fund within the U.S. Treasury, is the most significant source of federal funds for environmental land acquisition in Florida.

Established in 1965, it has provided monies for outdoor recreational land acquisition and facility development. Annual apportionments to the state are administered by the Department of Natural Resources in accordance with Chapter 16D-5, Part V,

F.A.C. Over \$32.5 million has been spent to acquire over 69,600 acres for state parks, matched with State funds; over \$62.2 million in program grants has been awarded to local governments, acquiring over 74,100 acres, matched by local sources.

The National Park Service (Department of the Interior) acquires properties related to preservation and management of national parks, recreation areas, seashores, monuments, memorials, and historic sites. Funds are typically provided by congressional appropriations to the Federal Land and Water Conservation Fund, although Florida provided funds to the National Park Service to purchase the Big Cypress National Preserve. Monies have been appropriated for the continued acquisition of land for the Gulf Islands National Seashore.

The U.S. Fish and Wildlife Service is permitted to acquire property for the management of its National Wildlife Refuges (NWR). Funds are also generally obtained from the Federal Land and Water Conservation Fund. The remaining funds are derived from the Migratory Birds Conservation Fund (hunting permit fees).

Current acquisition projects in coastal areas include the National Key Deer WR (Monroe County), J.N. Ding Darling NWR (Lee County), Crocodile Lake NWR (Monroe County), and Lower Suwanee NWR (Dixie and Levy Counties).

The National Oceanographic and Aeronautic Administration

(Department of Commerce) has been responsible for the regulation
and acquisition of lands for National Estuarine Research

Reserves. Expansion of the two National Estuarine Research

Reserves in Florida is possible using 1 to 1 matching funds from the

State.

The U.S. Army Corps of Engineers (Department of Defense) has acquired lands for both military and civil purposes. While military acquisitions are funded through federal appropriations, civil acquisitions may involve State and local funds. Such purchases are typically made provided that the COE perform all necessary engineering (i.e., bridges, dredging, revetments) to fulfill the purposes of the acquisition. Past acquisitions involving Corps' funds include Canaveral National Seashore and Biscayne National Park.

The Bureau of Land Management (Department of the Interior) may convey property to State and local governments under the Recreation and Public Purposes Act, 43 USC 869. The Florida Division of State Lands (Department of Natural Resources) has applied for conveyance of federal coastal lands in Charlotte, Lee, and Collier counties to be used for a national estuarine

research reserve a state park, a state reserve, and four aquatic preserves. Four hundred and fifty acres have been transferred thus far.

Last, the Federal Emergency Management Agency (FEMA) Section 1362 Acquisition Program has been used to acquire flood-damaged property to reduce future flood loss where such acquisition has been shown to be cost-effective. The program has not been used in Florida. Property to be purchased must meet one of the following damage criteria:

- 1) Damage "substantially beyond repair" by flood while covered under the National Flood Insurance Program;
- 2) Significant flood damage on not less than three occasions during a five year period while covered under the NFIP, and on each occasion the cost of repair was at least twentyfive percent of the value of the structure' or;
- 3) While covered under the NFIP, sustained damage from a single event is such that a statute, ordinance, or regulation precludes its repair or restoration, or permits repair or restoration only at significantly increased cost.

FEMA has established community eligibility criteria for the 1362 program as well, but because of limited funding it is necessary for a state or community to rank high among these criteria to obtain a share of Section 1362 monies.

Conservation and Recreational Lands Program (CARL)

Background

The CARL program was initiated by the Florida Legislature in 1979 and replaced the Environmentally Endangered Lands (EEL) program which had nearly exhausted its funding. CARL may be used for either fee simple or less-than-fee interest in environmentally endangered properties or other lands which serve the following:

- For use and protection as natural floodplain, marsh, or estuary, if the protection and conservation of such lands are necessary to enhance or protect water quality or quantity or to protect fish or wildlife habitat which can not otherwise be accomplished through local and State regulatory programs;
- For use as State parks, recreation areas, public beaches, State forests, wilderness areas, or wildlife management areas;
- 3. For restoration of altered ecosystems to correct environmental damage that has already occurred, or;
- For preservation of significant archaeological or historical sites.

As of July 1986, the CARL program had acquired 151,397 acres using \$140.9 million which includes revenue remaining from the EEL bond issue. Of course, only a portion of these land acquisitions are coastal.

Program Overview

The program was enacted under Chapters 253 and 259, F.S., and is administered by the Division of State Lands, Department of Natural Resources. The Governor and Cabinet, as the Board of

Trustees of the Internal Improvement Trust Fund, must approve all acquisitions using CARL funds and are given title to any lands acquired under the program. Section 259.035, F.S., establishes an interagency committee to prioritize and select lands for acquisition, and Chapter 18-8, F.A.C., outlines the procedures of evaluation and selection. Section 253.025 and Chapter 18-1, F.A.C., describe the procedures for acquisition. There is no general power of eminent domain; however, the legislature has specifically authorized condemnation for certain CARL projects. Chapter 253 also requires that all lands managed under CARL be open for public use and recreation subject to the compatibility of such uses with the conservation and protection of these public lands. The 1986 legislation enables the creation of land authorities, in areas of critical state concern, empowered with identifying parcels appropriate for acquisition under CARL (ss. 380.0666 (13)).

Financial Aspects

The CARL Trust Fund was created in 1979 (Chapter 253.023) and receives up to fifty percent of all monies collected from the excise tax on the severance of oil, gas, phosphate, and minerals. Three million dollars were appropriated during each of the two fiscal years after 1979. The annual cap was then raised progressively from \$20 million to \$40 million during the years 1981-86. All of the 1985-86 receipts have been committed through option contracts and all but \$1.6 million of the expected

receipts for 1986-87 have been committed. An estimated \$8.8 million are available and uncommitted for 1987-88. Ten percent of the funds available annually have been committed for management for fiscal year 1987-88 and subsequent years. To obtain additional funds for properties on the priority list, the 1986 Legislature has allowed \$10 million in the CARL Trust Fund to be deposited in the Land Acquisition Trust Fund (LATF) to pay debt service on a bond issue used exclusively to buy lands on that list. It was intended that the State could be more competitive using monies from bonds. Legislation restricts the use of bond proceeds to acquisitions available at seventy percent or less of the appraised value.

Procedural Aspects

Evaluation and selection of properties are based primarily on each proposal's resource value and acquisition feasibility.

Assessments are prepared for all proposals obtaining at least three votes from the Land Acquisition Selection Committee (LASC), which is comprised of the heads of the Department of Environmental Regulation, the Department of Natural Resources, the Department of Community Affairs, the Game and Fresh Water Fish Commission, the Division of Forestry (Department of Agriculture and Consumer Services), and the Division of Historical Resources (Department of State). The Division of State Lands (DNR) coordinates the selection procedure with contributions from agencies represented on the LASC. The LASC

establishes a preliminary priority list which is subject to public testimony. Final project design, as developed by the LASC, Division of State Lands, and the Florida Natural Areas Inventory, is then presented to the Governor and Cabinet. Acquisition procedures are the same for the Outdoor Recreation Program and the Save Our Coast Program.

The Land Acquisition Trust Fund

The Land Acquisition Trust Fund (LATF) is authorized under Section 375.041, F.S., and was created to facilitate and expedite the acquisition of land, water areas, and related resources, primarily for public recreation. Acquisitions using fund monies include park and recreation areas, wildlife preserves, forest areas, wetlands, floodways and water storage areas, submerged lands, and beaches. Two programs, the Save Our Coast Program and the State Recreation and Parks Land Acquisition Program, are funded through the LATF.

Save Our Coast (SOC)

Background

Save Our Coast is a result of increased awareness of the need to preserve Florida's disappearing beachfront. In a 1980 report to the Governor, the Resource Management Task Force recommended a ten percent increase in public coastal lands. This resulted in the establishment of a \$200 million bond issue, financed through Land Acquisition Trust Funds, for fast-track

purchases of beaches, barrier islands, and beach access points. Properties range from strictly local access parcels to major tracts requiring State development and management. Through July 1986, the SOC program had added about 2,713 acres of beachfront (20 tracts representing 13.0 miles of shore) to the public domain. The Guana tract, being acquired with both SOC and CARL funds, which contains 10,790 acres and about 4.6 miles of ocean front, will bring the total to over 13,500 acres and 17.6 miles of shoreline.

Program Intent

The program was initiated by executive order under Section 375.051, F.S., (the Outdoor Recreation and Conservation Act of 1963). The issuance of bonds for land for outdoor recreation and conservation is authorized under Article XII, Section 9, Florida Constitution. Chapter 375 created the Land Acquisition Trust Fund (LATF) in which money not appropriated for the operation and administration of the State park system could be used for the acquisition of new State park land. SOC is an exclusive application of accelerated funding to acquire seashore property, with an emphasis on sandy beaches. The State encourages local financial participation for locally preferred properties.

Funding

The Save Our Coast Program represents a dramatic increase in land acquisition funding by financing large bond issues with LATF

money, rather than by financing land purchases directly with the slower pace of LATF accrual. Projected LATF monies were estimated to be insufficient to keep up with rapid inflation of land prices and to secure choice remaining coastal properties. In response, the Governor and Cabinet approved a plan to issue \$200 million in bonds in 1981. The Governor and Cabinet, and the Legislature have approved successive issues of \$25 million each, the eighth and last approved in the 1986 legislative session. Debt service on each bond issue is paid from the LATF.

As of July 1986, sales of SOC bonds and interest earned on cash proceeds had raised over \$164 million, with about \$7.3 million still uncommitted. Contributions by local governments to various purchases totaled about \$14.3 million. An interim SOC acquisition list recently promulgated by the LASC, and awaiting review by the Governor and Cabinet, as the Board of Trustees of the Internal Improvement Trust Fund, contains 40 projects with an estimated acreage of about 115,00 acres and an estimated value of \$229 million. The 1986 Legislature recognized the need to provide continued funding above the original \$200 million bond issue to purchase coastal sites for future recreation needs and appropriated funds to pay debt service on an additional \$50 million bond issue.

Procedural Aspects

The SOC program has a yearly cycle featuring a first screening in July to select proposals for full review, the

promulgation of an acquisition list in November, and consideration by the Governor and Cabinet in January or February.

Criteria for selection include the need for public acquisition, suitability of property configuration to provide resource-based recreation, vulnerability of natural resources, and the availability of individual parcels comprising the project. Where the project is an addition to an existing park, additional criteria are considered: inclusion of otherwise protected adjacent features of recreational value, expansion of property boundaries to incorporate topographic delineations such as shorelines or ridges, inclusion of appropriate road frontage, and the straightening of irregular boundaries.

State Recreation and Parks Land Acquisition Program

Background

This program is administered by the Division of Recreation and Parks, Department of Natural Resources. Over 5,500 acres, at a cost of \$35.0 million, have been acquired under this program between 1963 and July 1986. These acquisitions are exclusive of Save Our Coast (SOC) and Florida Recreation Development Assistance Program (FRDAP) projects. Of the \$240 million in the 1972 bond issue, \$40 million was allocated for outdoor recreation; however, the LATF is not responsible for the retirement of these bonds.

Statutory Authority

Authorization to acquire lands for outdoor recreation and conservation is defined under Chapter 375, F.S. Chapter 16D-10, F.A.C., describes evaluation procedures for the program.

Acquisition is accomplished under the same statutory and regulatory authority as the CARL program (Section 253.035, F.S.; Chapter 18-1, F.A.C.).

Funding

Monies for the acquisition of recreation areas are funded from the LATF which is derived primarily from a portion of the documentary stamp tax. The revenue from the stamp tax is allocated according to Chapter 201.15, F.S. Prior to 1985 legislation, 13.3 percent was budgeted for the LATF. The 1985 legislation reduced this share to 12.5 percent but credits another 3.1 percent to the LATF, 60 percent of which are to be used to acquire coastal properties, with the remaining 40 percent for development and management of properties previously acquired through LATF.

Procedural Aspects

Under Chapters 259 and 275, F.S., projects are divided into "major" and "minor," based on whether the purchase price will exceed \$250,000. Minor projects can be negotiated by Division of State Lands staff without overview of the Land Acquisition Selection Committee. The evaluation and selection process for properties is identical to that used for Save Our Coasts.

Acquisition procedures are identical to those used for CARL. Review and assessment of proposals are done annually by the Division of Recreation and Parks and is based in part on the Outdoor Recreation Plan, which is updated annually. This document inventories existing resources and facilities, defines needs, and poses recommendations to implement policy. The program staff regularly contacts local governments to examine the feasibility of local participation in acquisition and development costs.

Proposals for acquisition may be submitted to the Land Acquisition Selection Committee (LASC) by local government or the general public. Further assessment and recommended project design are performed by the Division of Recreation and Parks.

The LASC then recommends a priority list to the Governor and Cabinet.

Florida Recreation Development Assistance Program (FRDAP)

Background

The Florida Recreation Development Assistance Program (FRDAP) was initiated in 1963 to provide financial assistance to local governments for the primary purpose of developing outdoor recreation facilities and for acquiring land for outdoor areas and facilities. Through fiscal year 1984-85, \$22.5 million has been spent on 373 acquisition and development projects. For

1985-87, \$3.4 million has been authorized (\$0.9 million for 1985-86 and \$2.5 million for 1986-87).

Statutory Intent

Chapter 375, F.S., authorizes the Department of Natural Resources to assist local governments in providing outdoor recreational opportunities. Chapter 16D-5, F.A.C., outlines the program's policies and evaluation criteria. All projects must be approved by the Governor and Cabinet sitting as the Board of the Internal Improvement Trust Fund. The 1986 legislation prohibits any funding for projects under FRDAP without undergoing the competitive selection process, guaranteeing a minimum of five percent of Land Acquisition Trust Fund monies for the competitive FRDAP program and eliminating the past practice of line-item appropriations.

Funding

The Land Acquisition Trust Fund provides money for the administration of grants to local government. Five percent of the funds allocated to the LATF are apportioned to FRDAP. When expenditures are less than the annual authorized funds or if a project is withdrawn, the unused balance reverts to FRDAP for later use.

FRDAP specifies funding limits per project for consecutive five-year periods and also requires that local governments match State contributions. Where approved projects provide facilities for resource-based activities, then the match is 2:1 (State:

local); where the project is user-oriented, the match is 1:2 (State/local).

Procedural Features

The annual review cycle begins with the application period, usually from September through October. Applications are ranked according to the following criteria, described further in Chapter 16D-5, F.A.C.:

- (1) the extent to which the project implements the goals of the Outdoor Recreation Plan;
- (2) the extent to which the project would satisfy recreation needs identified in the State Plan;
- (3) the extent to which the project contributes to outdoor recreation and related facilities;
- (4) the extent of the population served;
- (5) the accessibility of the project;
- (6) Whether the project is a new facility in an existing park or provides needed access to an existing body of water;
- (7) Whether the project is a priority in a local comprehensive plan, and;
- (8) the extent of local support.

Projects involving acquisition of environmentally significant lands may receive bonus rank points as might those which further State conservation and preservation programs.

Chapter 4

PROGRAM HIGHLIGHTS AND INTERRELATIONSHIPS

The preceding overviews have addressed eleven separate federal and State program areas which impact Florida's coastal barriers. Collectively, they represent the state's coastal management framework. The key aspects of each of these programs are highlighted, and program relationships, consistencies and inconsistencies are briefly discussed.

Program Highlights

The following summaries present the purpose, geographic application, major provisions, and methods of implementation of the selected federal and State coastal programs.

NATIONAL FLOOD INSURANCE PROGRAM

PURPOSE:

To provide flood damage insurance to individuals in flood hazard areas and to require appropriate construction and land use measures which will reduce flood risk.

PROGRAM BOUNDARIES:

Incorporated municipalities and counties which have special flood-prone hazard areas.

MAJOR PROVISIONS:

Entire community must participate (municipality or county) to obtain benefits. Participation in the program and enforcement of building regulations is a condition for receiving other federal aid for acquisition or construction of projects within identified flood hazard areas.

Program requires adoption of floodplain management ordinances, including building and land use codes, and compliance with permitting, certification, and enforcement procedures.

IMPLEMENTATION:

The National Flood Insurance Program is administered through the Federal Insurance Administration. Policies are issued to private property owners in participating communities. Insurance limits are determined by whether or not the community has received a detailed study of its flood-prone hazard areas.

COASTAL BARRIER RESOURCES ACT

PURPOSE:

To eliminate federal subsidies for coastal development which reduce the environmental economic and cultural

environmental, economic, and cultural values of undeveloped barrier areas.

PROGRAM BOUNDARIES:

The Act establishes, and applies to, the Coastal Barrier Resource System (CBRS) which consists of 33 units in Florida. The units include undeveloped coastal barriers which are not part of existing federal, state, or local areas established for recreational or conservation purposes.

MAJOR PROVISIONS:

No direct federal funds or assistance may be used for construction, maintenance, or repair of public infrastructure on designated barrier islands. However, federal funds may be used for navigation maintenance and improvement, habitat and resource protection, and recreation. Public infrastructure may be repaired only if it is considered to be an essential link in a larger network.

Communities may request variances and boundary adjustments during five-year reviews.

CBRA does not alter private property rights.

IMPLEMENTATION:

CBRA is authorized by an act of Congress, Public Law 97-348. It is administered by the Department of Interior.

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THE COASTAL CONSTRUCTION CONTROL LINE PROGRAM (SECTION 161.053, F.S.)

PURPOSE:

To insure that coastal construction is designed and sited to protect beach and dune systems, and to enhance the survivability of permitted structures under severe storm conditions.

PROGRAM BOUNDARIES:

All lands seaward of the coastal construction control line, as established in the 24 program counties having sandy beaches fronting the Atlantic Ocean or Gulf of Mexico.

MAJOR PROVISIONS:

Program requirements include stringent siting and design criteria. All habitable structures must be pile-supported, elevated based on the projected 100-year storm surge, and designed for 140 m.p.h. winds. Beach-dune topography must be protected. All construction must be designed to minimize erosive effects.

Most habitable structures proposed in a location which, based on erosion projections, will be seaward of the seasonal high water line within 30 years are prohibited.

IMPLEMENTATION:

A permit from the Florida Department of Natural Resources, through the Division of Beaches and Shores, is required for all construction and excavation activities seaward of established control lines. Rules and procedures for obtaining such permits are found in Chapter 16B-33, F.A.C.

THE COASTAL ZONE PROTECTION ACT OF 1985: COASTAL BUILDING ZONES AND CODES

PURPOSE:

To impose stricter building standards in specified coastal building zones in order to minimize damage to the environment, property, and life.

PROGRAM BOUNDARIES:

- 1) For mainland beaches, spits, and peninsulas, the coastal building zone is the area from the seasonal high-water line landward to a line 1,500 ft. landward of the coastal construction control line (CCCL).
- 2) For barrier islands, the coastal building zone is the land area from the seasonal high water line to a line 5,000 ft. landward of the CCCL, or the entire island, whichever is less.
- 3) For coastal barrier areas fronting the Gulfof Mexico, Atlantic Ocean, Florida Bay or Straits of Florida which do not have CCCLs, the coastal building zone is the land area seaward of the most landward V-zone.
- 4) All of the Florida Keys.

MAJOR PROVISIONS:

At a minimum, structures must be designed, sited, and constructed in compliance with National Flood Insurance Program regulations.

Major structures must at a minimum be designed and constructed in accordance with 1986 revisions to the Standard Building Code (1985) using a fastest milewind velocity of 110 mph (115 mph in Florida Keys).

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IMPLEMENTATION:

Each local government whose jurisdiction includes a coastal building zone must adopt the subject "minimum" coastal building standards as part of its local building code, not later than January 1, 1987. This is a locally-administered and enforced coastal building code. State involvement is limited to technical assistance and assuring compliance by local governments.

FLORIDA'S BEACH MANAGEMENT AND EROSION CONTROL PROGRAM

PURPOSE:

To initiate a state program of beach management, restoration and renourishment, in order to address long-term solutions to the problem of severely-eroding beaches.

PROGRAM BOUNDARIES:

Florida's sandy beaches. A special emphasis is placed on improved navigational inlets and their contribution to the erosion of adjacent beaches. The state's beaches are divided into 7 districts for plan development and management purposes.

MAJOR PROVISIONS:

A proposed beach restoration project must provide adequate public access and protection for historically established habitats and endangered threatened species.

State funding may be authorized in an amount up to 75% of the cost of restoring and renourishing a critically-eroded beach. The local government in which the beach is located is responsible for the balance of costs.

IMPLEMENTATION:

The Department of Natural Resources, through the Division of Beaches and Shores, must develop and maintain a comprehensive long-term management plan for Florida's beaches and establish a corresponding state priority list of beach restoration and renourishment projects.

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COASTAL MANAGEMENT ELEMENTS OF THE LOCAL GOVERNMENT COMPREHENSIVE PLAN

PURPOSE:

To allow state and local government to address major coastal issues in a consistent manner, to direct local government to restrict development where such activity would damage coastal resources, and to reduce public expenditure in areas subject to natural disaster.

PROGRAM BOUNDARIES:

"Coastal areas" as defined by those local governments required to prepare a coastal management element. Minimum definitional criteria for "coastal areas" may be found in Chapter 9J-5, F.A.C.

MAJOR PROVISIONS:

Analyses of land use, coastal resource, and economic inventories.

Requires a disaster redevelopment plan with an analysis of infrastructure and evacuation capabilities.

Inventory and analyses of recreational facilities and needs.

Requires regulatory and management techniques to mitigate development impacts in coastal areas.

IMPLEMENTATION:

The coastal management element is a part of a local government's comprehensive plan and is thus subject to the preparation, adoption, amendment, and monitoring requirements of the overall plan.

Beginning on July 1, 1988, and on or before July 1, 1990, all coastal counties and corresponding coastal municipalities must submit plans to the Department of Community Affairs for compliance review. The submission schedule is provided in Chapter 9J-12, F.A.C.

COASTAL BARRIER EXECUTIVE ORDER (EO 81-105)
(AND LETTER TO AGENCY HEADS, AUGUST 8, 1986)

PURPOSE:

To reduce continuous State investment in infrastructure which is highly susceptible to repeated damage, and to reduce the subsidy to private and public development of coastal barriers.

PROGRAM BOUNDARIES:

All barrier islamds without connecting bridges or causeways and all units within the federally-designated Coastal Barrier Resource System (CBRS). Restrictions also apply to areas which are seaward of the CCCL or are within V-zones.

MAJOR PROVISIONS:

No State funds for public infrastructure will be available for barrier islands which have no commecting causeways or which are units of the CBRS.

Justifiable replacement of facilities must be equal to or less than the capacity of the original facilities.

Usage of State funds must be consistent with comprehensive plans approved pursuant to Sections 380.045 and 380.05, F.S.

IMPLEMENTATION:

The Departments of Commerce, Community Affairs, Environmental Regulation, Health and Rehabilitative Services, Transportation, and the Office of Planning and Budgeting are responsible for carrying out the Governor's directives.

Agencies are to manage growth in a manner consistent with exacuation capabilities.

Coastal barriers are to be given priority in acquisition programs.

COASTAL BARRIER INFRASTRUCTURE POLICY (SECTION 380.27, F.S.)

PURPOSE:

To withold State funding for infrastructure activities which would encourage imprudent development on coastal barriers.

PROGRAM BOUNDARIES:

Coastal high-hazard areas within the state as defined by local governments required to prepare a coastal management element of the comprehensive plan.

Barrier islands without bridges or causeways.

MAJOR PROVISIONS:

No State funds for bridges or causeways to barrier islands not already served by such.

No State funds for expanded infrastructure unless consistent with an approved coastal management element.

IMPLEMENTATION:

The State, through the budget process. Annual policy review by the Department of Community Affairs.

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WINDSTORM INSURANCE RISK APPORTIONMENT (Ch. 627.351, F.S.)

PURPOSE:

To require all property insurers operating in Florida to provide windstorm insurance to eligible applicants who are unable to obtain such coverage in the ordinary market.

PROGRAM BOUNDARIES:

Areas declared eligible by the Department of Insurance.

Areas specified in the directories of the Florida Windstorm Underwriters Association (FWUA) [see References].

MAJOR PROVISIONS:

Provides windstorm insurance to those areas where, by designation or by hearing, it has been determined that: 1) the area affected has been economically impacted by lack of insurance, 2) appropriate building codes have been enforced, and 3) such coverage will further all State policies applicable to coastal management.

IMPLEMENTATION:

Application to the FWUA must include proof of compliance with the criteria listed above.

EMERGENCY MANAGEMENT (CH. 252, F.S.; CH. 9G-13, F.A.C.)

PURPOSE:

To facilitate the delivery of Federal disaster assistance and to minimize the effects of emergencies which are aggravated by inadequate land use and facilities planning in coastal zones.

PROGRAM BOUNDARIES:

Those areas specified in Sections 380.24 and 163.3177, F.S., for inclusion in the coastal management elements under the local government comprehensive planning requirements of Chapter 163, Part II, F.S.

MAJOR PROVISIONS:

Affects only funds administered under the Federal Disaster Relief Act of 1974 for damaged public infrastructure. Funds for individual assistance are unaffected.

Section 163.3178 (2) (h) specifies the considerations where industrial operations take place.

IMPLEMENTATION:

The Division of Emergency Management, Department of Community Affairs, coordinates an assessment of damages for the State's application to FEMA. Eligibility is restricted to political applicants which have adopted hazard mitigation plans that meet the criteria specified in Section 9G-13.005, F.A.C., or have contractually agreed with the Department to the provisions of the rule.

STATE ACQUISITION PROGRAMS

PURPOSE:

To protect environmentally sensitive land and water resources, and to acquire and manage property for recreation and conservation. The Florida Recreational Development Assistance Program (FRDAP) has the primary purpose of developing recreational sites and facilities.

PROGRAM BOUNDARIES:

All lands within the state borders may be considered for acquisition. The Save Our Coast program is limited to seashores, primarily those with sandy beaches. The Conservation and Recreational Lands program is oriented towards properties of unique environmental or cultural value.

MAJOR PROVISIONS:

Lands acquired under CARL must be open to the public wherever compatible with the resource protection characteristics of the property.

FRDAP requires matching funds from local government which vary according to whether the project will be resource-based or user-oriented.

IMPLEMENTATION:

Funds for specific acquisition programs are derived from various sources: severence taxes, documentary stamp taxes, and bond issues.

Most proposals for acquisition must be submitted to the Land Acquisition Selection Committee (LASC) by either the general public or local government. Assessment of proposals and establishment of priority lists for acquisition are performed by the LASC with the aid of the Division of Recreation and Parks, Department of Natural Resources.

DISCUSSION OF PROGRAM RELATIONSHIPS

Coastal Building Standards

The imposition of stricter coastal building standards is a shared objective of three of the programs reviewed in this manual--The National Flood Insurance Program (NFIP), the Coastal Zone Protection Act of 1985 (CZPA), and the Coastal Construction Control Line (CCCL) Program.

The State building requirements associated with the CZPA were changed in 1986 to be made more consistent with NFIP requirements. The result is a degree of uniformity in the design standards for coastal construction. The geographic coastal areas affected by these two programs overlaps to a large extent. In contrast, the NFIP and CZPA building standards are generally less stringent than those required by the Department of Natural Resources seaward of the coastal construction control line.

Collectively, the end result is three different sets of coastal building standards, applied to three geographically distinct zones. While perhaps confusing, the programs are consistent in terms of the single objective of improving the quality of coastal construction.

With regard to the building standards aspects of the three subject programs, they are generally unrelated to, or consistent with, the objectives or impacts of the other coastal programs highlighted herein. For example: 1) participation in NFIP is

requisite for inclusion in a state application for disaster assistance (Chapter 9G-13, Emergency Management); 2) coastal management element preparation requirements assume the incorporation of floodplain management ordinances and coastal building codes of the CZPA, and; 3) the Windstorm Insurance Risk Apportionment rules stipulate the adoption and enforcement of FEMA established minimum lowest-floor elevations as a requirement for insurance eligibility.

The only potential point of contention is the larger question addressing the impact of better built structures on the beach and dune system. Should these enhanced structures survive design storm conditions, they have the potential to impede natural post-storm recovery processes. Further, over the long term, these better built structures may require armoring or renourishment to realize their anticipated design life.

Land Use and Hazard Mitigation

Certain provisions of the following programs influence land use: the National Flood Insurance Program, Coastal Management Elements of the Local Government Comprehensive Plan, Executive Order 81-105, and the Emergency Management rules. Rather than-or in addition to--specifying construction measures which may limit damages, these programs impact density and type of use on coastal barriers.

Each program, with the exception of EO 81-105, requires the preparation or adoption of a land use or hazard mitigation plan

which restricts development in hazardous areas and encourages growth only where the capacity of existing public infrastructure permits. Other programs which restrict public expenditures for infrastructure (for example, Coastal Barrier Resources Act, State Infrastructure Policy) affect land use indirectly by limiting the potential for future development. Pursuant to Chapter 163, F.S., and Rule 9J-5, coastal elements must be consistent with State and regional resource management plans and hazard mitigation plans.

In addition to directing agencies to consider evacuation capabilities as part of growth management and regional planning, Executive Order 81-105 permits State expenditures in coastal areas with approved resource management or comprehensive plans. Thus, there is a certain degree of consistency between programs which regulate land use and those governing investment.

There is, however, the potential problem of inconsistency between local government comprehensive plans. The degree of compatibility between how individual governments' coastal elements address the management of common coastal barrier areas is of enormous consequence.

Barrier Policy/Funding Restrictions

The Federal Coastal Barrier Resources Act (CBRA), the
National Flood Insurance Program (NFIP), the Governor's Coastal
Barrier Executive Order (EO 81-105) and the State's Coastal
Barrier Infrastructure Policy (Section 380.27, F.S.) share a

common concern for the protection of coastal barrier areas.

Their mutual objective is to restrict public expenditures which may encourage imprudent coastal development. Florida's procedures for emergency management (Chapter 252, F.S.; Chapter 9G-13, F.A.C.) have impacts on coastal barrier redevelopment as well.

Because of differences in policy provisions, procedural aspects, and geographic applications, the cumulative impact of these programs is somewhat uneven. This is clearly evidenced in the Infrastructure Policy's focus on inaccessible barrier islands and high-hazard coastal areas to be designated by local government, versus CBRA's more precisely defined approach employing designated units of the Federal Coastal Barrier Resource System. The fragmentation is partially addressed by Executive Order 81-105, which restricts the expenditure of state funds by agencies under the Governor for new or expanded infrastructure in any designated unit of the CBRS, seaward of the coastal construction control line, in FEMA V-zones, and allows for such expenditures only when consistent with the coastal management element of a local government's comprehensive plan. Further, the letter of August 8, 1986, and the Emergency Management Program support caps on barrier development by restricting the redevelopment capacity of public infrastructure to that of existing facilities. Finally, consistency in impact should be greatly enhanced with the approval of revised local

government coastal management elements, beginning in July 1988. From that point in time, all State expenditures for increasing infrastructure capacity will be considered only to the extent that they are found to be consistent with a local government's coastal management element.

Incentives/Subsidies

The National Flood Insurance Program (NFIP) has provided private property owners in flood-prone areas with previously unavailable flood insurance. With its availability came muchneeded floodplain management regulations and coastal building standards. Nevertheless, at a time when both federal (CBRA) and State programs are removing development incentives and encouraging public acquisition of coastal barrier properties, the issue of providing publicly-subsidized flood insurance has been raised. Some individuals propose that its availability in certain coastal high-hazard areas undermines other program policies and regulatory provisions aimed at restricting development on highly vulnerable coastal barriers. The same argument can be made with regard to the Windstorm Insurance Program: such coverage, whether subsidized or not, permits redevelopment where perhaps, without its availability, none would occur. Under the program, windstorm insurance may be available to property owners within CBRS units, whereas the intent of the Coastal Barrier Resource Act is to deny governmental financial incentives for redevelopment. Fortunately, from a State.

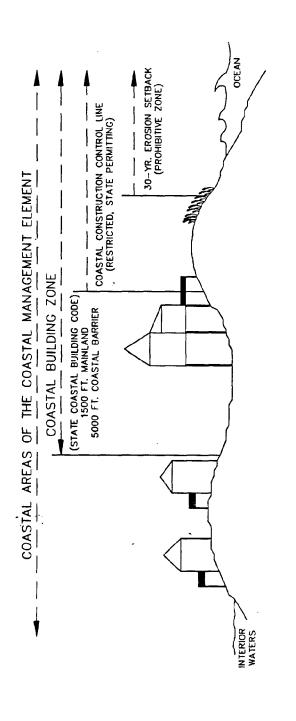
perspective, the 1986 amendments to Section 627.351, F.S., require that windstorm insurance coverage be consistent with State coastal management, beach preservation, and comprehensive planning laws and rules.

The intent of Florida's new beach restoration initiative is to systematically address the problem of severely eroding beaches. Its objectives are to restore recreational beaches and provide protection to upland structures. In many cases, the alternatives are few--restoration, abandonment, or armoring. This decision-making dilemma was the primary catalyst for this year's legislative initiative to comprehensively plan for the restoration of Florida's beaches.

Although clearly not the intent, any extensive public works program, such as a massive statewide beach restoration initiative, has the potential to enhance development opportunities, and may undermine regulatory efforts to restrict or relocate development or redevelopment activities, at a significant dollar cost to the public.

Coastal Zones

Several of the programs highlighted in this manual address specific coastal zones. These programs may be regulatory in nature (CCCL), code-type programs (CZPA), or a combination of both such as the NFIP, or solely policy-oriented (Coastal Barrier Infrastructure Policy). The actual effectiveness of these programs is largely a function of the extent to which they contribute to an integrated management framework.



COASTAL ZONES

While many of the subject programs share common objectives, their impacts have been, or have the potential to be, uneven or counterproductive. The "new" coastal management elements of the local government comprehensive plan are intended to provide the essential linkages between planning and practice, policy and implementation, and State and local responses—assuring a certain degree of consistency between program objectives and impacts.

While statutory definitions are included in most of the rules, regulations and programs addressed, there are occasional overlaps and gaps among the program boundaries, which reduce the programs' effectiveness. The Coastal Barrier Executive Order addresses both barrier islands and coastal areas in general. The National Flood Insurance Program draws distinctions by the design features for structures, and the mechanism of flood risk, qualified on maps. The wind insurance program is not restricted to barriers, and the CZPA establishes three types of building zones in coastal areas. Care must be exercised in determining whether different programs impact areas with the same boundaries or topographic characteristics.

Land Acquisition

State land acquisition programs have the most far-reaching potential to support other coastal regulatory and management programs. In turn, such acquisition activities, either directly or indirectly, further the objectives and intentions of almost all of the programs addressed by this manual. The simple act of

removing beachfront from the realm of developable acreage reduces most adverse land use and infrastructure impacts along with associated insurance needs. The NFIP has a land acquisition aspect, Section 1362, with the specific purpose to remove structures from the floodplain that have been damaged. While the program has not been used extensively in Florida, the DCA has published the document, "Selective Acquisition of Flood-Prone Lands in a Post Disaster Situation" to encourage use of this potent mechanism.

While CBRA does not address acquisition as a tool to further its objectives, the federal designation of undeveloped units of the Coastal Barrier Resource System has facilitated State efforts to acquire many properties within designated CBRS units. While it is impossible to quantify what significance inclusion in a CBRS unit has on a property owner's decision to sell designated land to the State, the recent frequency of Save Our Coast acquisition of CBRS properties can not be overlooked or attributed to mere coincidence.

With respect to emergency management, public acquisition of coastal high-hazard properties would greatly minimize risk to life and property and reduce both the number and dollar value of properties in the insurance pool. However, existing acquisition programs and procedures are not oriented towards post-disaster acquisition or hazardous properties in general. Thus, current public acquisition programs do not provide a viable alternative

to private redevelopment of impacted properties. This is the most notable and significant weakness or "inconsistency" in the relationship between Florida's extensive land acquisition program and other State regulatory and management programs impacting coastal barrier areas.

Acquisition of pristine, fragile coastal barrier areas has the direct benefit of removing such properties from subsequent regulatory decision-making. Public ownership preempts the need to make difficult coastal construction control line permit decisions, lessens future infrastructure demands, and reduces the potential for future disaster assistance. Further, public ownership of large undeveloped tracts of coastal property greatly enhances the opportunity for effective beach and resource management, the primary objective of several of the programs highlighted herein. Public access is assured, furthering the goals and objectives of Florida's beach and shore preservation program, pursuant to Chapter 161, F.S., the State Comprehensive Plan, and the coastal management policies of Chapter 163, F.S.

Concluding Remarks

As stated at the onset, the purpose of this manual is to provide the user with a concise reference to federal and State programs which have the potential to affect coastal management decisions. As intended, the majority of the text has been devoted to providing program overviews, based on review of statutes and rules, with welcomed assistance from agency

personnel.

Individual opinions and assessments have, no doubt, been reflected in the preceding discussion of program interrelationships. However, the importance of focusing on how these eleven programs "fit" together can not be overstated. They share a common, critically important thread—they all significantly impact Florida's fragile coastal barrier islands and associated landforms. The extent to which we grasp these subtle program interactions will largely determine the degree of success achieved in effectively managing the state's coastal barrier areas. The next step will be the preparation of local government coastal management elements.

APPENDIX

REFERENCES AND RESOURCES

LEGAL CITATIONS

Statute

Program References

Chapter 161,	F.S.	Coastal Construction Control Lines; Coastal Zone Protection Act; Florida's Beach Management and Erosion Control Program
Chapter 163,	F.S.	Coastal Management Elements
Chapter 252,	F.S.	Emergency Management
Chapter 253,	F.S.	Land Acquisition Programs (CARL)
Chapter 258,		Land Acquisition Programs
Chapter 259,	F.S.	Land Acquisition Programs (LATF)
Chapter 375,		Land Acquisition Programs (LATF; FRDAP)
Chapter 380,		Coastal Barrier Infrastructure Policy
Chapter 627,		Windstorm Insurance Risk Apportionment

Rule	9G-13,	F.A.C.
Rule	9J-5,	F.A.C.

Rule 9J-12, F.A.C.

Rule 16B-26, F.A.C.

Rule 16B-33, F.A.C.

Rule 16D-5, F.A.C. Rule 16D-10, F.A.C.

Rule 18-1, F.A.C.

Rule 18-8, F.A.C

Post-Disaster Redevelopment Rule Minimum Criteria for Review of Local Government Comprehensive Plans and Determination of Compliance Schedule of Submission of Revised Local Government Comprehensive Plans Descriptions of Coastal Construction Control Lines Rules and Procedures for Coastal Construction and Excavation Criteria for Evaluating Proposals to FRDAP Rules for Evaluation of Proposed Properties for Acquisition Procedures for the Acquisition of CARL Properties Criteria for Evaluation and Selection of

Chapters 59-77, CFR Public Law 90-448 Public Law 92-583 Public Law 93-288 Public Law 97-348

National Flood Insurance Program
National Flood Insurance Act of 1968
Coastal Zone Management Act of 1972
Disaster Relief Act of 1974
Coastal Barrier Resources Act

Title 43 CFR Subtitle A

Title 44 CFR Part 205

Coastal Barrier Resources Act; Advisory Guidelines Disaster Assistance; Implementation of Coastal Barriers Resources Act

CARL Properties

CONTACT LIST

Beach Management and Erosion Control

Department of Natural Resources Division of Beaches and Shores Office of Beach Erosion Control 3900 Commonwealth Blvd. Tallahassee, FL 32399 (904) 488-3180

Coastal Barrier Infrastructure Policy

Florida Department of Community Affairs Division of Resource Planning and Management 2751 Executive Center Circle East Tallahassee, FL 32399 (904) 488-9210

Coastal Barrier Resources Act

U.S. Department of the Interior U.S. Fish and Wildlife Service 18th and C St., NW Washington, D.C. 20405 (202) 343-2618

Florida Department of Community Affairs Bureau of State Resource Planning 2571 Executive Center Circle East Tallahassee, FL 32399 (904) 488-9210

Coastal Construction Control Line

Department of Natural Resources Division of Beaches and Shores Bureau of Coastal Engineering and Regulations 3900 Commonwealth Blvd. Tallahassee, FL 32399 (904) 488-3180

Coastal Management Elements

Florida Department of Community Affairs Division of Resource Planning and Management Bureau of Local Resource Planning 2751 Executive Center Circle East Tallahassee, FL 32399 (904) 487-4545

Coastal Zone Protection Act

Florida Department of Community Affairs Bureau of State Resource Planning 2572 Executive Center Circle East Tallahassee, FL 32399 (904) 488-9210

Emergency Management

Florida Department of Community Affairs Division of Emergency Management Bureau of Planning 1720 Gadsden St. Tallahassee, FL 32399 (904) 487-4915

Executive Order 81-105

Executive Office of the Governor Office of Planning and Budgeting Natural Resources Section 404 Carlton Building Tallahassee, FL 32399 (904).488-5551

National Flood Insurance Program

Federal Emergency Management Agency, Region IV 1375 Peachtree Street, N.E. Suite 788
Atlanta, GA 30309
(404) 347-7058

Florida Department of Community Affairs Division of Resource Planning and Management Bureau of Resource Management 2571 Executive Center Circle East Tallahassee, FL 32399 (904) 488-4925

State Land Acquisition Programs

Florida Department of Natural Resources Division of State Lands Bureau of Land Acquisition 3900 Commonwealth Blvd. Tallahassee, FL 32399 (904) 488-2351

Windstorm Insurance

Florida Windstorm Underwriting Association 1000 Riverside Avenue Suite 408 Jacksonville, FL 32204 (904) 354-3302

Florida Department of Insurance Division of Risk Management Larson Building Tallahasse, FL 32399 (904) 488-5073

BIBLIOGRAPHY

- Collier, Courtland, et. al. 1977. Guidelines for Beachfront Construction with Special Reference to the Coastal Construction Setback Line. Florida Sea Grant, University of Florida, Gainesville, FL.
- Davis, John. H., Jr. 1975. Stabilization of Beaches and Dunes by Vegetation in Florida. Florida Sea Grant, University of Florida, Gainesville, FL.
- Ditton, Robert B., John L. Seymour, and Gerald C. Swanson. 1977.

 Coastal Resource Management, Lexington Books, Lexington, MA.
- Florida Department of Community Affairs. 1984. Local Official's Floodplain Management Handbook. Tallahassee, FL.
- Florida Department of Community Affairs. 1986. Selective Acquisition of Floodprone Land and Structures in a Postflood Situation. Tallahassee, FL.
- Florida Department of Community Affairs. 1986. Back to the Water: Discovering Florida's Urban Waterfronts. Tallahassee, FL.
- Florida Department of Natural Resources. 1986. A Proposed Comprehensive Beach Management Program for the State of Florida. Tallahassee, FL.
- Jones, Christopher P. and Leigh Taylor Johnson. 1982. Coastal Construction Practices. Florida Sea Grant, University of Florida, Gainesville, FL
- Nelson, Walter G. 1985. Guidelines for Beach Restoration Projects. Florida Sea Grant, University of Florida, Gainesville, FL.
- Pilkey, Orrin J., Jr., et al. 1984. Living with the East Florida Shore. Duke University Press, Durham, N.C.
- Pilkey, Orrin J., Jr., et al. 1984. Living with the West Florida Shore. Duke University Press, Durham, N.C.
- Questions and Answers on the National Flood Insurance Program. 1983. Federal Emergency Management Agency, Washington, D.C.
- Salmon, Jack, Don Henningsen, and Thomas McAlpin. 1982. Dune

- Restoration and Revegetation Manual. Florida Sea Grant, University of Florida, Gainesville, FL.
- Smith, Lester B., Jr. 1983. Barrier Beach Management Sourcebook.

 Massachusetts Coastal Zone Management, Boston, MA.
- Statewide Plan for Acquisition and Conservation of Environmental Resources. 1986. Land Acquisition Selection Committee and the Division of State Lands, Florida Department of Natural Resources, Tallahassee, FL.
- Undeveloped Coastal Barriers: Definitions and Delineation Criteria. 1982. Coastal Barrier Task Force, U.S. Department of the Interior, Washington, D.C.
- U.S. Army Corps of Engineers. 1981. Low Cost Shore Protection: A Guide for Local Government Officials. Ft. Belvoir, VA.
- U.S. Army Corps of Engineers. 1981. Low Cost Shore Protection: A Property Owner's Guide. Ft. Belvoir, VA.
- Walton, Todd L., Jr. 1983. Hurricane Resistant Construction for Homes. Florida Sea Grant, University of Florida, Gainesville, FL.
- Walton, Todd L., Jr. and Thomas C. Skinner. 1983. Beach Dune Walkover Structures. Florida Sea Grant, University of Florida, Gainesville, FL.
- Yanggen, D.A. 1981. Regulations to Reduce Coastal Erosion Losses. Wisconsin Coastal Management Program, University of Wisconsin, Madison, WI.
- Zinn, Jeffrey. 1982. Coastal Barrier Protection, Issue Brief Number IB80057. Congressional Research Service, Library of Congress, Washington, D.C.

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